

## CLAIMS

1. A three-dimensional printing system, comprising:  
a printing apparatus to print three-dimensional objects; and  
a controller to receive data from a material supply source and to control said printing  
5        apparatus.
2. The system of claim 1, comprising at least one cartridge apparatus to provide building  
material to print said objects, said cartridge apparatus having a sensor to measure the  
status of building material in the cartridge.
3. The system of claim 2, wherein said cartridge apparatus comprises a cartridge housing,  
10        said housing including at least a memory device reader.
4. The system of claim 2, wherein said cartridge apparatus comprises a cartridge housing,  
said housing including a connection unit.
5. The system of claim 2, wherein said cartridge apparatus comprises a memory device to  
record data relating to building material in a cartridge.
- 15        6. The system of claim 2, wherein said cartridge apparatus comprises an electromagnetic  
source.
7. The system of claim 1, wherein said printing apparatus includes a set of valves to  
control supply of building materials from at least one cartridge apparatus to said printing  
apparatus.
- 20        8. The system of claim 1, wherein said controller is to cause switching of material supply  
sources.
9. The system of claim 1, wherein said controller is to calculate material parameters from  
materials in one or more cartridge apparatuses, based on data of building material in said  
at least one cartridge apparatus.
- 25        10. The system of claim 1, wherein said printing apparatus is to inflate a cartridge bag and  
to cure material within at least one cartridge apparatus.
11. The system of claim 1, wherein said printing apparatus comprises at least a printing  
head.
12. The system of claim 1, comprising at least one cartridge array.
- 30        13. A three dimensional building material container, comprising:  
a container unit to store three-dimensional building material; and  
a sensor to measure the status of said building material.
14. The container of claim 13, wherein the sensor is a mass sensor.

- 15.A printing apparatus, comprising:  
a container to store three-dimensional building material; and  
a sensor to measure the status of said building material.
- 16.The printing apparatus of claim 15, comprising a memory device to provide building  
5 material information.
- 17.The printing apparatus of claim 16, comprising a memory device reader to read said  
building material information.
- 18.The printing apparatus of claim 15, comprising a bag to store said building material.
- 19.A printing system, comprising:  
10 a printing controller; and  
a printing apparatus, said apparatus having a set of valves by which said controller is to  
control supply of three-dimensional printing materials from a plurality of printing material  
supply sources.
- 20.The apparatus of claim 19, wherein said set of valves includes a valve matrix including  
15 an outgoing tube for each type of material required by said printing apparatus.
- 21.The apparatus of claim 19, wherein said set of valves is to connect said printing  
apparatus to at least one array of printing material supply sources.
- 22.The apparatus of claim 19, wherein upon lowering of the level of said material in said  
supply source to a pre-determined amount, said set of valves is adapted to automatically  
20 switch material sources.
- 23.A printing method, comprising:  
measuring data on the status of three-dimensional building material in at least one building  
material source; and  
determining parameters of said building material.
- 25 24.The method of claim 23, comprising determining supply parameters of said building  
material.
- 25.The method of claim 23, comprising controlling a supply of said building material  
from two or more said material sources according to said supply parameters.
- 26.The method of claim 25, wherein said controlling of material supply is enabled by  
30 controlling a set of valves.
- 27.The method of claim 23, comprising sending an alert to at least one operator.
- 28.The method of claim 23, wherein measuring material status includes measuring the  
mass of said building material in at least one printing cartridge.

29.The method of claim 23, comprising computing an amount of building material required to print an object.

30.The method of claim 23, comprising computing an amount of time remaining before a printing cartridge requires replacement.

5 31.The method of claim 23, comprising alerting an operator if at least one printing cartridge requires replacement.

32.The method of claim 23, comprising automatically switching supply sources for said building material if at least one printing cartridge requires replacement.

33.A method comprising:

10 generating electromagnetic radiation; and

curing three dimensional building material contained within a printing cartridge.

34.The method of claim 33 comprising channeling said electromagnetic radiation into said cartridge.

15 35.The method of claim 33, comprising making a hole in a cartridge bag, said hole enabling the entrance of said electromagnetic radiation into said cartridge bag.

36. The method of claim 33, comprising inflating a cartridge bag to enable said electromagnetic radiation to reach substantially all parts of said cartridge bag.

37.The method of claim 33, comprising controlling said curing from a three dimensional printer.

20 38.A device comprising:

an electromagnetic radiation source;

a three-dimensional print material reservoir; and

a curing unit adapted to cure three-dimensional printing material within said reservoir using electromagnetic radiation.

25 39.The device of claim 38, wherein said reservoir is a printing cartridge.